



NASA/USRA

Asthenia Def. cont.

This report was a collaborative international work effort focused on the evaluation and determination of the importance of continuing research on asthenia as a possible psychological problem that might affect the optimal psychological functioning among crewmembers during long-duration space flight missions.

“If our diagnostic systems do not readily match the symptoms profiles presented, practitioners will continue to underdiagnose psychological disorders (Kessler et al. 1994; Üstun et al. 1995; Mason & Wilkison, 1996 as cited in Hickie, 1997)”

This comprehensive international systematic literature review includes six phases: Phase 1: Inclusion and Exclusion criteria, Phase 2: Data collection, Phase 3: Initial evaluation of data, Phase 4: Interviews with experts, Phase 5: Analysis and interpretation, and Phase 6: Results. We examined physical, psychological and psychiatric literature that comprised studies involving astronauts and cosmonauts during short- and long-duration space flight missions. Countries included in the literature review were Canada, Germany, Spain, Japan, Czech Republic, Russia, U.S.A., U.K., Australia, and Switzerland, and, in the interview process, Canada, Germany, Spain, Japan, Czech Republic, Russia, and U.S.A.

Exclusion criteria were: 1) technical reports, books, conference, newspapers, magazines, dissertations, commentaries, case-sample studies, literature reviews that were not representative of the astronaut or cosmonaut population and that were not related to the area of psychology, psychiatry, asthenia, mental health during long- and short-duration space flight missions.

Table of international Definitions of Asthenia

Tiganov, A.S. 1975	Asthenia	Is a state characterized by the heightened susceptibility to fatigue, fast onset of exhaustion, partial or total loss of capacity for prolonged physical activity or mental exertion	Space psychology	Russia
Encyclopedic Dictionary of Medicine Terms 1982	Asthenia	A state characterized by increased susceptibility to fatigue, frequent change of mood, irritable weakness, hyperesthesia, tearfulness, ANS and sleep disorders	Physiology	Russia
Encyclopedic Dictionary of Medicine Terms 1982	Neuropsychiatric asthenia	Decrease of functional capabilities of the central nervous system manifested in reduced performance, mental fatigue, worsening of attention and memory, and hyperreactivity with irritable weakness, that occurs after serious illness, trauma ,or as a result of psychoemotional overexertion	Physiology	Russia
Encyclopedic Dictionary of Medicine Terms 1982	Psychasthenia	Asthenia manifesting in increased susceptibility to exhaustion of psychological processes and delay in recovery that occurs in combination with hyperesthesia and emotional lability.	Physiology	Russia
Alexandrovskiy & Navikov 1997	Psychasthenia	Often refers to problems in adapting to the new external and internal factors as psychological maladaptation meaning, essentially, asthenia that does not produce any psychotic disorders or major psychopathological disorders.	Space psychology	Russia
Psychosasthenia syndrome in space flight (Myasnikov V.I et al 2000)	Asthenia	One distinguishing characteristic of asthenia syndrome is irritable weakness, which is expressed as elevated excitability, quick changing (unstable) moods, and irascibility. All these expressions intensify in the afternoon or closer to the evening. The mood is usually low with some traces of petulance and dissatisfaction. Asthenia syndrome is frequently accompanied by headaches and sleep disturbances that present as increased sleepiness or persistent insomnia, as well as low tolerance for bright light, loud noises, and sharp aromas. Asthenia syndrome in space can be identified in three different stages: a) First stage: expressed primarily in a heightened emotional excitability b) Second stage: characterized by a set of symptoms, at the heart of which are mood swings, frequent fatigue, decrease of performance quality, and signs of sleep disturbance. c) Third stage: consistently low mood, expressed irritability, conflict tension, hypochondriac phenomena, frequent and significant errors in performing work-related tasks, and expressly manifested sleep disturbances (requiring systematic use of sleep aid medication)	Space psychology	Russia
DSM-IV-TR (APA 2000)	shenjing shuairao	A condition characterized by physical and mental fatigue, dizziness, headaches, other pains, concentration difficulties, sleep disturbance and memory loss.	Psychological-psychiatric	Japan
Tsung 1989	shinkeisujaku	Psychological reaction developed in a certain type of personality characterized by hypersensitivity, introversion, Self-consciousness, perfectionism and hypochondriacal disposition.	Psychological-psychiatric	China
Titov, A.S. 1975	Asthenia	It is a syndrome that should be viewed as adaptive reaction due to exhaustion of nervous system as a result of overexertion, lack of proper nutrition, disruptions in intercellular metabolism and intoxication.	Space physiology	Russia
Moran, 2008	Neurasthenia	Asthenia is a pathological fatigue, also associated with various non-neoplastic diseases, particularly acute or chronic infections. Symptoms include: weakness, need to rest, lack of concentration, lack of appetite, problems with sleep, anxiety and depression	Physiology	Switzerland



The Behavioral Health and Performance research element is aware of the existence of asthenia in space and is currently developing an exhaustive international literature review and conducting interviews with experts in the area of space psychology and psychiatry. International collaborative research in this area is sorely needed to determine and evaluate whether asthenia is a potential psychological problem that adversely affects the optimal psychological functioning of crewmembers for future long-duration space flight missions of extended duration and/or beyond low-Earth orbit.

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